

is arrayed, these empty cells will either be in the column to the right (if the range is in a column) or in the row immediately below (if it is in a row).

- 4) Select **Data > Multiple Operations** on the Menu bar to open the Multiple Operations dialog (Figure 314).

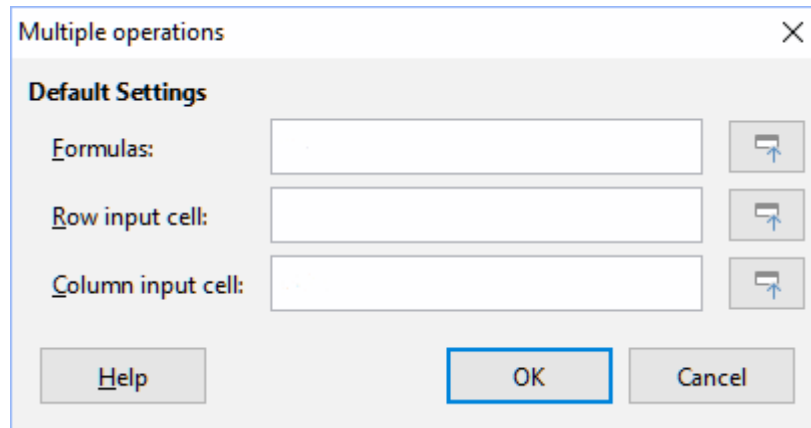


Figure 314: Multiple Operations dialog

- 5) Click on the *Formulas* field and type a cell reference to the formula you defined in step 1 or select the cell with the mouse. Use the associated **Shrink / Expand** button if you need to minimize the dialog while selecting the cell.
- 6) If the range from step 2 is arrayed in a column, then click on the *Column input cell* field and type a cell reference to the variable that you want to use or select the cell with the mouse. If the range is in a row, then use the *Row input cell* field instead.
- 7) Click **OK** to run the tool. The Multiple Operations tool will generate its results in the empty cells that you selected in step 3. Each result value corresponds to the variable value adjacent to it, and together they form the entries of a results table.

### An example with one formula and one variable

Using the Multiple Operations tool is best explained by example. Suppose that you produce toys that you sell for \$10 each (cell B1 of a worksheet). Each toy costs \$2 to make (B2), and you have a fixed annual cost of \$10,000 (B3). What is the minimum number of toys that you must sell to break even? Suppose that our initial estimate of quantity sold is 2,000 (B4).

To answer this question:

- 1) Enter the following formula into B5:  $=B4 * (B1 - B2) - B3$ . This formula represents the equation *Profit = Quantity \* (Selling price – Direct costs) – Fixed costs*. With this equation, our initial quantity produces a \$6,000 profit, which is higher than the break-even point.
- 2) In D2:D11, enter a range of alternate quantities from 500 to 5000 in steps of 500.
- 3) Select the range D2:E11 to define the results table. This range includes the alternate quantity values (column D) and the empty results cells (column E).
- 4) Select **Data > Multiple Operations** on the Menu bar to open the Multiple Operations dialog.
- 5) Using the *Formulas* field, select the cell B5.
- 6) Using the *Column input cell* field, select the cell B4 to set the quantity as the variable for our calculations. Figure 315 shows the worksheet and Multiple Operations dialog at this point.